

fore, here proposed for species with keyhole-like aperture, hyperstomial ovicegell and tremocyst frontal, with *Gemellipora glabra* Smitt, 1872, a common species of the Gulf of Mexico, as the genotype.

Figularia duvergieri, new name

Proposed for *Figularia carinata* Duvergier, 1924, from the Helvetian of Salles, France, preoccupied by *Figularia* (*Figulina*) *carinata* Waters, 1923, a recent species from the East Indies.

To the *Fossilium Catalogus* the following generic citations should be added:

Spirillopora Gürich, 1896. Lower Devonian

Gürich, Verh. d. Russ.-Kais. Mineral, Gesell. zu St. Petersburg, (2) XXXII, p. 213, 1896.

Genotype.—*S. anguillula* Gürich, 1896, idem, p. 213, pl. X, fig. 17. Poland. Unrecognizable. Figure shows only a twisted stem with cells in spiral rows.

Vetofistula Etheridge, Jr., 1917. Devonian

Etheridge, Jr., Geol. Surv. Queensland, Pub. No. 26, p. 17, 1917.

Genotype.—*V. mirabilis* Etheridge, Jr., 1917. Not recognizable.

Zeapora Penecke, 1893. Devonian

Penecke, Jahrb. d. kk. geol. Reichsanst. XLIII, p. 610, 1893.

Genotype.—*Z. gracilis* Penecke, 1893. Alps. Unrecognizable. A trepostome but illustrated by only a poor section.

PALEONTOLOGY.—*A new Allagecrinus from Oklahoma.*¹ EDWIN KIRK, U. S. Geological Survey.

The U. S. National Museum has recently acquired a number of Pennsylvanian crinoids from Mr. H. L. Strimple of Bartlesville, Oklahoma. Some of them are of considerable biologic and stratigraphic interest, and Mr. Strimple deserves much credit for discovering and calling attention to this material from a hitherto barren field. The most interesting crinoids collected are a suite of *Allagecrinus* preserving the arms. *Allagecrinus* and allied genera have been known for a long time from many parts of the world, and several hundred specimens have been collected. Up to the present, however, none has been found with the arms attached. The species itself proves to be new and is here described as *Allagecrinus strimplei*. Altogether 10 dorsal cups and 18 complete crowns, as well as several sets of dissociated arms, have been available for study.

¹ Published by permission of the Director, U. S. Geological Survey. Received January 29, 1936.

Allagecrinus strimplei, n. sp.

The species is comparable in size with the larger known species of *Allagecrinus* from the Pennsylvanian and Permian. The largest dorsal cup has a diameter of approximately 5 mm. The smallest individual is about one-half as large. The largest complete crown has a height of 12 mm. The other

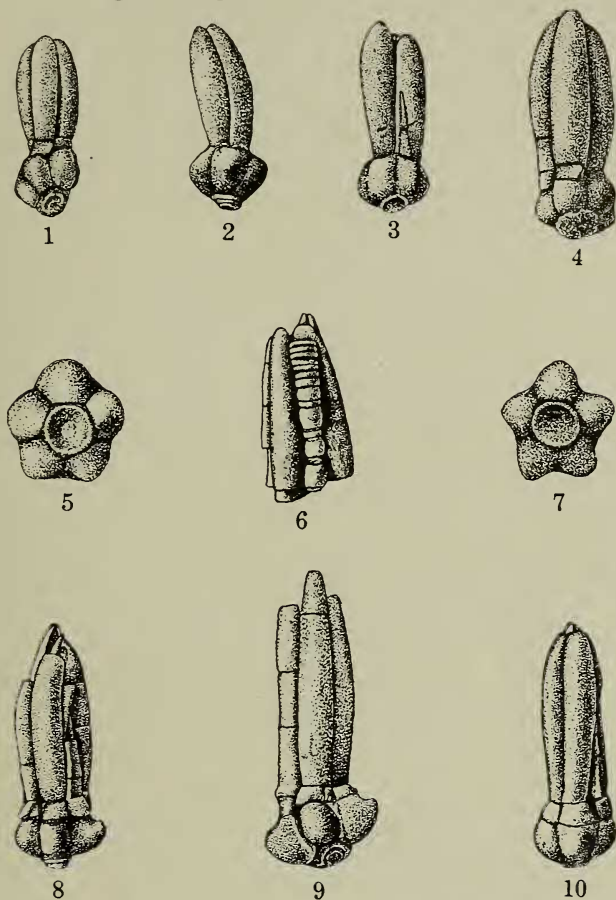


Fig. 1.—*Allagecrinus strimplei*, n. sp. Young individual in three-arm stage. Fig. 2.—Four-arm stage. Fig. 3.—Three-arm stage with incipient fourth arm appearing. Fig. 4.—Four-arm stage, primary arm in center and secondary arm to left. Figs. 5, 7.—Basal views of two dorsal cups showing variation in lobation. Fig. 6.—Proximal portion of column lying on a set of arms. Fig. 8.—Five-arm stage; primary arm in center; secondary arms to right and left. Fig. 9.—Largest complete crown; primary arms in center and to right; secondary arm to left. All figures are $\times 3$. They have been drawn in pen and ink from photographs and are somewhat diagrammatic.

specimens are intermediate in size and yield a fair series of growth stages that are especially interesting as regards the development of the arms.

The dorsal cup is depressed bowl shaped, with a diameter approximately twice the height. The radials are tumid, giving the dorsal cup a distinctly pentalobate to substellate outline as seen from above or below. The basals form a pentagon approximately two-fifths the diameter of the cup. What

appear to be sutures within the basal circlet may be seen at times, but the almost complete coverage of the basals by the proximal columnal makes it impossible to identify and orient the basal elements with certainty. If sutures are present, as seems probable, one would expect three unequal elements. The radials are higher than wide. In very young specimens the radials are moderately convex. With increasing age the radials become more and more tumid. In the largest specimens each radial bears a large protuberance. In most cases the upper surface of this knob is flattened to concave as seen in profile. This is well shown in the drawings. The tumidity of the radials varies in amount and character as between individuals of nearly the same stage of development, and even between different radials of the same specimen. Based on the relative convexity of the radials the series of specimens in hand could readily be separated into two species, the younger specimens in one species and the older in another. The right and left posterior radials are but slightly notched by the first anal plate, so little in fact that it is difficult to identify the posterior interradius except in very well-preserved and carefully cleaned specimens. The anal plate notches more deeply into the right posterior radial than the left. The articulating face of each radial is produced inward as a shelf. On this shelf the position of each arm is marked by a depression bounded on the sides by converging ridges. The shelf supporting the arms is continuous except in the posterior interradius. In the posterior interradius the shelf is interrupted by a parabolic notch which in well-preserved specimens is clearly shown.

In the youngest specimens which have the arms preserved, three large arms are present. Later, additional arms appear. In the oldest specimens preserving the arms, five arms of approximately equal size are found. In the largest dorsal cup the converging ridges on the superior faces of the radials and the articulating facets indicate at least eight arms, with a possibility that a ninth arm is just beginning to appear. If so, this ninth arm would give three arms to one ray, which is the left posterior. The radials bearing two arms each are the left posterior, anterior, and right anterior. Owing to the fact that we do not have a large number of dorsal cups, and that where the arms are preserved they are often partially detached from the radials and shifted from their original positions, it is not possible to determine accurately the orientation of the three original arms.

The arms are variable in structure. The three primary arms seem to agree in being made up of a short first brachial followed by a very long second brachial. Additional brachials are added subsequently. The secondary arms have the short first brachial, but the second brachials are not so disproportionately long, and several shorter brachials make up the length attained by the two brachials of the three primary arms. An average of many measurements of the first brachials gives a length of 0.9 mm. In the primary arms the second brachials have an average length of 6.7 mm. In one ray where several brachials are preserved, presumably a secondary arm, the brachials give the following measurements: 1, 0.9 mm; 2, 1.7 mm; 3, 2.1 mm; 4, 2.6 mm. Another arm of the same type gives the following measurements for the brachials: 1, 0.9 mm; 2, 1.3 mm; 3, 1.6 mm; 4, 1.8 mm; 5, 2 mm. In the secondary arms the greatest variation in length seems to be found in the third brachial, measurements varying from 1.3 mm to 3.4 mm. The mature brachials have an average maximum breadth of 1.4 mm. The backs are strongly convex, and the surface is covered with fine granulations. The secondary arms as they first appear have flat or slightly convex backs, which gradually increase in convexity with age. The union of the first

brachial with the radial is weak, as is also the union between the first and second brachials. As a result the arms are seldom in true alignment and in their original positions.

Fortunately fragments of column have been found in such relationships with the *Allagecrinus* crowns as to leave no doubt as to their belonging together. The column figured lies on a set of arms and is incomplete in its proximal portion. The proximal columnals are thin and become narrower distad. This tapering proximal portion of the column is similar to that commonly found in the Flexibilia. Below the tapering columnals the character of the column changes completely. The columnals are beadlike, and the nodals are relatively large. The general aspect of the column is very like that of one of the young Flexibilia from the Devonian or Mississippian.

There is no described species of *Allagecrinus* with which *A. strimplei* may be confused.

Horizon and locality.—The specimens were collected by Mr. H. L. Strimple in the Dewey limestone (Pennsylvanian) near Dewey, Oklahoma.

Types.—The cotypes are in the Springer collection in the U. S. National Museum, No. S. 4126.

BIOLOGY.—*Food of Arctic birds and mammals collected by the Bartlett Expeditions of 1931, 1932, and 1933.*¹ CLARENCE COTTAM, U. S. Biological Survey. (Communicated by WALDO L. SCHMITT.)

On Captain R. A. Bartlett's three arctic expeditions in the summers of 1931, 1932, and 1933, alimentary material, mostly gullet and stomach or gizzard contents of 115 birds representing 21 species and one additional subspecies, was collected. This material, subsequently submitted to the Biological Survey for analysis, forms the basis for this paper. Fifty-three birds were secured on the first expedition during July and August from northwestern Greenland in the vicinity of Clavering Island, northward to slightly beyond the 74th parallel north latitude and between the 13th and 29th meridians west longitude. The second expedition returned with 20 birds from western and northern Greenland, northward to latitude 76° 33'. These birds, likewise, were taken during the months of July and August. Localities mentioned were Parker Snow Bay, Dalrymple Island, Cape York, Walstenholme, and North Star Bay in latitude 76° 33'. During the 1933 expedition, which extended from July to September, one weasel and five ground squirrels were collected in addition to 42 birds. Collections were made in the area between northern Hudson Bay and western Greenland. Localities recorded included Melville Peninsula; Duckett's Cove, Hudson Strait; Igloolik Island near Fury and Hecla Strait; Cape Frigid, Southhampton Island; and the open seas at latitude 61° north and longitude 64° 20' west.

¹ Received February 11, 1936.